

REMARKS

Claims 1-29 are now in the application. Claim 1 has been amended to recite “wherein the polymer is at least one member selected from the group consisting of NR, BR and SBR and, wherein the filler is at least one filler selected from the group consisting of carbon black, silica, water-glass, colloidal silica, clay and calcium carbonate, whereby the work or heat efficiency of the production of the polymer from the latex thereof containing the specified filler is improved, without causing heat degradation or gelling of the polymer”. The amendment to claim 1 can be found, for instance, at page 8, lines 4-8 of the specification, original claim 3, lines 14-27 and the examples in the specification and page 3, lines 14-27 of the specification. In view of the amendment to claim 1, claim 3 has been amended to recite “wherein the filler is at least one filler selected from the group consisting of carbon black and silica”. Claim 8 has been amended to recite “in terms of solid content” in place of “(solid content)” for purposes of clarification and not to limit its scope. The amendments to the claims do not introduce any new matter.

Claims 1-6, 8-13, 15-21 and 23-26 are drawn to the elected invention. Claims 7, 14, 22 and 27-29 are drawn to non-elected invention and may be cancelled by the Examiner upon the allowance of the claims directed to the elected invention.

As a preliminary matter, with respect to the deletion by the Examiner of Japanese 11-292978(Citation BB) from the IDS filed on June 9, 2006, please note that it was reinserted (Foreign Patent Document 1) along with a copy of the citation in the IDS filed May 4, 2007, which has now been acknowledged.

The objection of claims 8-14 has been obviated by the above amendment to claim 8.

Claims 1-5 were rejected under 35 USC 102(b) as being anticipated by EP 1306424 (also referred to herein as “EP’424”) to Takana et al. as evidenced by US Patent 4,092,279 to Piskoti. The cited references do not render obvious claims 1-5.

As is clear from the disclosure of the present application, especially claim 1 as amended, important aspects of the present invention reside in the production of a polymer composition, more specifically a rubber composition, containing (i) a specified rubber (i.e., NR, BR and/or SBR) and (ii) a specified filler (i.e., carbon black, silica, water-glass, colloidal silica, clay and calcium carbonate) by simultaneously drying by means of a shock wave generated from pulse combustion (i.e., also referred to as “a pulse drying” herein), whereby the work or heat efficiency of the production of the specified rubber from the latex thereof containing the specified filler can be greatly improved, without causing serious heat degradation, or gelling of NR, BR and/or SBR, unlike the prior art. This is completely absent in the cited references.

EP'424 suggests spray-drying a liquid comprising an acrylic polymer, sodium carbonate and sodium sulfate using a pulse-shock wave dryer. However, EP'424 fails to disclose pulse drying a liquid containing (i) NR, BR and/or SBR and (ii) the specified filler, i.e., carbon black, silica, water-glass, colloidal silica, clay and calcium carbonate. The purpose of the present invention is to provide a pulse drying method of a NR, BR and/or SBR latex containing the above-specified filler with the improved heat efficiency and without causing the undesired heat degradation or gelling of NR, BR and/or SBR. EP'424 only relates to the drying of particles for a detergent (or surfactant) composition containing an acrylic polymer, sodium carbonate and sodium sulfate, that differs completely and clearly from the present invention.

Piskoti suggests a coating composition for rubber articles containing (A) a preformed latex binder, (B) an emulsifying agent, (C) a filler (e.g., graphite, carbon black and mineral fillers), (D) a thickening agent and (E) casein.

However, this is completely different from the present invention. The pulse drying of this coating composition is completely absent in Piskoti.

Moreover, there is no mention, in Piskoti, of the production of a polymer composition, more specifically a rubber composition, containing (i) the specified rubber (i.e., NR, BR and/or

SBR) and (ii) a specified fillet (i.e., carbon black, silica, water-glass, colloidal silica, clay and calcium carbonate) by a simultaneous pulse drying, whereby the work or heat efficiency of the production of the specified rubber from the latex thereof containing specified filler can be greatly improved, without causing the serious heat degradation or gelling of NR, BR and/or SBR, unlike the prior art. Since Piskoti does not suggest the results achievable by the present invention, EP '424 is not even combinable with EP '424.

There is no suggestion in the cited art that employing pulse drying would achieve the beneficial results achievable by the present invention.

Claim 6 was rejected under 35 USC 103(a) as being unpatentable over EP 1306424 to Takana et al. in view of US Patent 5,842,289 to Chandran et al. (hereinafter also referred to as "Chandran"). The cited references do not render obvious claim 6. Chandran was relied upon for a disclosure of a frequency in the range of from about 50 to about 500 Hz. However, Chandran does not overcome the above discussed deficiencies of Takana et al. with respect to rendering unpatentable the present invention.

Chandran suggests a pulsating apparatus comprising a pulse combustion device. However, again, there is no mention, in Chandran, of the production of a polymer composition, more specifically a rubber composition, containing (i) a specified rubber (i.e., NR, BR and/or SBR) and (ii) a specified filler (i.e., carbon black, silica, water-glass, colloidal silica, clay and calcium carbonate) by a simultaneous pulse drying, whereby the work or heat efficiency of the production of the specified rubber from the latex thereof containing the specified filler can be greatly improved, without causing the serious heat degradation or gelling of NR, BR and/or SBR, unlike the prior art.

Since Chandran does not suggest the results achievable by the present invention, Chandran is not even combinable with Takana et al. There is no suggestion in the cited art that employing pulse drying would achieve the beneficial results achievable by the present invention.

Claims 8-13 were rejected under 35 USC 103(a) as being unpatentable over US Patent 5,028,482 to Jeffs in view of US Patent 5,842,289 to Chandran et al. and EP 1306424 to Takana et al. Claims 15, 16, 20 and 21 were rejected under 35 USC 103(a) as being unpatentable over US Patent 5,028,482 to Jeffs in view of US Patent 5,842,289 to Chandran et al. and EP 1306424 to Takana et al. The cited references do not render obvious 8-13, 15, 16, 20 and 21.

In particular, Jeffs suggests the process for the production of a latex-coated inorganic filler, which differs completely from the production of NR, BR and/or SBR containing the specified filler according to the present invention. In addition, again, there is no mention, in Jeffs, of the production of a polymer composition, more specifically a rubber composition, containing (i) a specified rubber (i.e., NR, BR and/or SBR) and (ii) a specified filler (i.e., carbon black, silica, water-glass, colloidal silica, clay and calcium carbonate) by a simultaneous pulse drying, whereby the work or heat efficiency of the production of the specified rubber from the latex thereof containing the specified filler can be greatly improved, without causing serious heat degradation or gelling of NR, BR and/or SBR, unlike the prior art.

Although, Chandran suggests a pulsating apparatus comprising a pulse combustion device, there is no mention, in Chandran, of the production of a polymer composition, more specifically a rubber composition, containing (i) a specified rubber (i.e., NR, BR and/or SBR) and (ii) a specified filler (i.e., carbon black, silica, water-glass, colloidal silica, clay and calcium carbonate) by a simultaneous pulse drying, whereby the work or heat efficiency of the production of the specified rubber from the latex thereof containing the specified filler can be greatly improved, without causing serious heat degradation or gelling of NR, BR and/or SBR, unlike the prior art. Since Chandran does not suggest the results achievable by the present invention, Chandran is not even combinable with Jeffs.

EP'424 suggests spray-drying a liquid comprising an acrylic polymer, sodium carbonate and sodium sulfate using a pulse-shock wave dryer. However, EP'424 fails to disclose pulse drying a liquid containing (i) NR, BR and/or SBR and (ii) the specified filler, i.e., carbon black, silica, water-glass, colloidal silica, clay and calcium carbonate. The purpose of the present invention is to provide a pulse drying

method of a NR, BR and/or SBR latex containing the above-specified filler with the improved heat efficiency and without causing the undesired heat degradation or gelling of NR, BR and/or SBR. EP'424 only relates to the drying of particles for a detergent (or surfactant) composition containing an acrylic polymer, sodium carbonate and sodium sulfate, that differs completely and clearly from the present invention. Also, since EP'424 does not suggest the results achievable by the present invention, EP'424 is not even combinable with Jeffs.

Furthermore, there is no suggestion in the cited art that employing pulse drying would achieve the beneficial results achievable by the present invention.

Claims 17-19 were rejected under 35 USC 103(a) as being unpatentable over US Patent 5,028,482 to Jeffs in view of US Patent 5,842,289 to Chandran et al. and further in view of JP 09279184 to Horie et al (hereinafter also referred to as "Horie") and EP 1306424 to Takana et al. The cited references do not render obvious claims 17-19. The above discussions of Jeffs, Chandran and Takana et al. are incorporated here. Horie does not overcome the above discussed deficiencies of Jeffs, Chandran and Takana et al. with respect to rendering unpatentable the present invention. Accordingly, claims 17-19 are unpatentable for at least those reasons as to why claim 15 is patentable.

Horie suggests the production of a detergent builder powder from a carboxymethyl cellulose, sodium alginate and crosslinked-type polyacrylic acid. This is clearly different from the present invention.

Claims 23, 24 and 26 were rejected under 35 USC 103(a) as being unpatentable over US Patent 5,028,482 to Jeffs in view of US Patent 5,842,289 to Chandran et al. and further in view of US Patent 6,040,364 to Mabry et al (hereinafter also referred to as Mabry) and EP 1306424 to Takana et al. The cited references do not render obvious claims 17-19. The above discussions of Jeffs, Chandran and Takana et al. are incorporated here. Mabry does not overcome the above discussed deficiencies of Jeffs, Chandran and Takana et al. with respect to rendering unpatentable the present invention.

Mabry suggests the production of elastomeric compositions by a continuous flow method. However, again, there is no mention, therein, of the production of a polymer composition, more specifically a rubber composition, containing (i) a specified rubber (i.e., NR, BR and/or SBR) and (ii) a specified filler (i.e., carbon black, silica, water-glass, colloidal silica, clay and calcium carbonate) by a simultaneous pulse drying, whereby the work or heat efficiency of the production of the specified rubber from the latex thereof containing the specified filler can be greatly improved, without causing serious heat degradation or gelling of NR, BR and/or SBR, unlike the prior art. Mabry does suggest the results achievable by the present invention and is therefore not even properly combinable with Jeffs.

Furthermore, there is no suggestion in the cited art that employing pulse drying would achieve the beneficial results achievable by the present invention.

Claims 1, 2 and 6 were provisionally rejected on the ground of obviousness-type double patenting as being unpatentable over US Patent Application 10/588,102. This rejection of the claims has been rendered moot in view of the above amendments to claim 1 that include recitations from claim 3. Claim 3 was not subject to this rejection.

The cited references lack the necessary direction or incentive to those of ordinary skill in the art to render a rejection under 35 USC 103 sustainable. The cited references fail to provide the degree of predictability of success of achieving the properties attainable by the present invention needed to sustain a rejection under 35 USC 103. See *KSR Int'l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727; 82 USPQ2d 1385 (2007), *Diversitech Corp. v. Century Steps, Inc.* 7 USPQ2d 1315 (Fed. Cir. 1988), *In re Mercier*, 187 USPQ 774 (CCPA 1975) and *In re Naylor*, 152 USPQ 106 (CCPA 1966).

Moreover, the properties of the subject matter and improvements which are inherent in the claimed subject matter and disclosed in the specification are to be considered when evaluating the question of obviousness under 35 USC 103. See *KSR Int'l Co. v. Teleflex, Inc.*, *supra*; *Gillette Co. v. S.C. Johnson & Son, Inc.*, 16 USPQ2d 1923 (Fed. Cir. 1990), *In re*

Antonie, 195 USPQ 6 (CCPA 1977), In re Estes, 164 USPQ (CCPA 1970), and In re Papesch, 137 USPQ 43 (CCPA 1963).

No property can be ignored in determining patentability and comparing the claimed invention to the cited art. Along these lines, see In re Papesch, supra, In re Burt et al, 148 USPQ 548 (CCPA 1966), In re Ward, 141 USPQ 227 (CCPA 1964), and In re Cescon, 177 USPQ 264 (CCPA 1973).

In view of the above, consideration and allowance are respectfully solicited.

In the event the Examiner believes an interview might serve in any way to advance the prosecution of this application, the undersigned is available at the telephone number noted below.

The Office is authorized to charge any necessary fees to Deposit Account No. 22-0185, under Order No. 21713-00031-US1 from which the undersigned is authorized to draw.

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Respectfully submitted,

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